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EXAMINER	
WASHBURN, DOUGLAS N	
ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 03/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/904,348	TOOMEY, PATRICK
	Examiner	Art Unit
	Douglas N Washburn	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 25 February 2002.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-93 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12, 14-44, 46-72, 74-86 and 88-93 is/are rejected.

7)☒ Claim(s) 13, 45, 73 and 87 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 July 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1 The drawings filed on 12 July 2001 are acceptable subject to correction of the informalities indicated below. Drawing figures 7B and 7F margins are non-compliant with MPEP 608.02 (g). Correction is required. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Claim Objections

2 Claim 14 is objected to because of the following informality:

Line 2 "...**an ground vibrator**".

3 Claims 25, 27, 29, 31, 57, 59, 61 and 63 objected to because of the following informalities: Line 3 contains a double recited term "wall". Correction is required.

4 Claims 13, 45, 73 and 87 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5 "(b1)" lacks antecedence in claims 6 and 7.

6 "Computer" lacks antecedence in claims 70-74.

Claim Rejections - 35 USC § 102

7 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8 Claims 1-11, 16, 19, 24-43, 48, 51, 56-72, 74-76, 80, 85 and 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Webster (US 5,679,899)(Hereafter referred to as Webster).

9 Regarding claims 1-11, 16, 19, 24-43, 48, 51, 56-72, 74-76, 80, 85 and 92, Webster teaches a method for determining structural integrity comprising:

Optically sensing vibration from a structure (Column 1, line 4-11; Figure 1);

Determining whether a fault exists in a structure based on optically sensed structural vibrations (Column 1, line 4-11; Figure 1);

Generating a laser beam and transmitting the laser beam toward a structure (Column 2, line 58-64; Figure 1);

Receiving the reflected laser beam from a structure (Column 2, line 58-64; Figure 1);

Detecting Doppler shift in the received laser beam relative to the transmitted laser beam (Column 2, line 58-64; Figure 1);

Determining at least one or both peak displacement and velocity of the vibration (Column 2, line 58-64; Figure 1);

Sensing peak displacement of the vibration from at least one portion of the structure (Column 2, line 58-64; Figure 1);

Sensing peak velocity of the vibration from at least one portion of the structure (Column 6, line 39-47);

Optically sensing vibrations from different portions of the structure corresponding to similar elements of the structure comprising:

comparing vibrations from different portions of the structure and determining whether a fault exists in a structure based on optically sensed structural vibrations based on comparing vibrations from different portions of the structure (Column 3, line 55-58);

based on comparing peak displacements of the vibrations (Column 3, line 55-58);

based on comparing peak velocity of the vibrations (Column 6, line 39-54);

Optically sensing vibrations from a structure performed with a laser vibrometer (Column 1, line 4-11);

performed with a Doppler laser vibrometer (Column 1, line 4-11);

Determining whether a fault exists in a structure performed with a computer (Column 7, line 32-41);

Vibrating the structure (Column 2, line 15-19);

Vibrating the structure by generating sonic waves (Column 2, line 15-19);

Vibrating the structure by direct application of force (Column 1, line 58-62);

Determining a fault exists in the structure due to damage of a structure element (Column 2, line 38-50);

A structure element comprises at least one:

Foundation, roof, ceiling, floor, wall, beam, column, support, joist, wall panel, wall frame, window, window frame, duct, plumbing, piping or hanger (stringer) (Column 10, line 45-50);

Determining a fault exists in a structure due to deterioration of a structure element (Column 1, line 28-31);

Determining a fault exists in a structure due to due to dislocation or separation between structure elements (Column 9, line 1-10);

Determining a fault exists in a structure due to due to improper joining of structure elements (Column 9, line 1-10);

Optically sensing vibrations at spaced portions of a structure to produce a first set of vibration data readings (Column 3, line 55-65);

Establishing baseline data from the first set of vibration data readings for respective spaced portions of the structure (Column 3, line 55-65; Figure 1);

Optically sensing vibrations at spaced portions of a structure to produce a second set of vibration data readings at a time after completion of performing sensing of first set of vibration data

(Column 3, line 55-65);

Comparing vibration data of the second set to the vibration data of the first set to generate comparison result data (Column 3, line 55-65);

Determining whether a fault exists in the structure at the time of comparing vibration data of the second set to the vibration data of the first set to generate comparison result data based on the comparison data (Column 3, line 55-65);

Generating a laser beam and transmitting the laser beam to the structure (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Receiving the laser beam from the structure, the received beam shifted in phase relative to the transmitted beam due to the vibration of the structure (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Detecting a received beam phase shift (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Determining at least one or both the peak displacement and peak velocity of the vibration based on detecting the received beam phase shift (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Generating a laser beam and transmitting the laser beam to the structure (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Receiving the laser beam from the structure, the received beam shifted in phase relative to the transmitted beam due to the vibration of the structure (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Detecting the received beam phase shift

(Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Determining at least one or both the peak displacement and peak velocity of the vibration based on detecting the received beam phase shift (Column 4, line 65-67 and Column 5, Line 1-6; Figure 1);

Comparing vibration data of the second set to the vibration data of the first set to generate comparison result data from different portions of the structure corresponding to similar elements of the structure (Column 3, line 55-65);

Optically sensing vibrations at spaced portions of a structure to produce a first set of vibration data readings using a laser vibrometer (Column 2, Line 38-47);

Establishing baseline data from the first set of vibration data readings for respective spaced portions of the structure (Column 2, Line 38-47);

Optically sensing vibrations at spaced portions of a structure to produce a second set of vibration data readings at a time after completion of performing sensing of first set of vibration data (Column 2, Line 38-47);

Comparing vibration data of the second set to the vibration data of the first set to generate comparison result data (Column 2, Line 38-47);

Determining whether a fault exists in the structure at the time of comparing vibration data of the second set to the vibration data of the first set

to generate comparison-result-data based on the comparison data (Column 2, Line 38-47);

Optically sensing vibrations at spaced portions of a structure to produce a first set of vibration data readings using a Doppler laser vibrometer (Column 2, Line 38-47);

Establishing baseline data from the first set of vibration data readings for respective spaced portions of the structure (Column 2, Line 38-47);

Optically sensing vibrations at spaced portions of a structure to produce a second set of vibration data readings at a time after completion of performing sensing of first set of vibration data (Column 2, Line 38-47);

Comparing vibration data of the second set to the vibration data of the first set to generate comparison result data (Column 2, Line 38-47);

Determining whether a fault exists in the structure at the time of comparing vibration data of the second set to the vibration data of the first set to generate comparison-result-data based on the comparison data (Column 2, Line 38-47);

Optically sensing vibrations at spaced portions of a structure to produce a first set of vibration data reading performed with a laser vibrometer (Column 2, line 38-47);

Optically sensing vibrations at spaced portions of a structure to produce a first set of vibration data reading performed with a Doppler laser

vibrometer (Column 2, line 38-47);

Establishing baseline data from the first set of vibration data readings for respective spaced portions of the structure performed with a computer (Column 2, line 38-47);

Comparing vibration data of the second set to the vibration data of the first set to generate comparison result data performed with a computer (Column 2, line 38-47);

Determining whether a fault exists in the structure at the time of comparing vibration data of the second set to the vibration data of the first set to generate comparison-result-data based on the comparison data performed with a computer (Column 2, line 38-47).

Vibrating the structure to produce vibration sensed in at least one of:

Optically sensing vibrations at spaced portions of a structure to produce a first set of vibration data readings and optically sensing vibrations at spaced portions of a structure to produce a second set of vibration data readings at a time after completion of performing sensing of first set of vibration data (Column 2, line 38-47);

A system for detecting a fault in a structure comprising:

An optical vibration sensor (OVS) positioned in proximity to the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS optically sensing vibration of the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS generating an optical vibration sensor signal based on the sensed vibration from the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS signal indicating whether a fault exists in the structure (Column 7, line 32-50; Figure 1 and 3);

An optical vibration sensor (OVS) positioned in proximity to the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS optically sensing vibration of the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS generating an optical vibration sensor signal based on the sensed vibration from the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS signal indicating whether a fault exists in the structure;

wherein:

A computer coupled to receive the OVS signal generates a display based on the OVS signal and is used by a user to determine whether a fault exists in the structure (Column 7, line 32-50; Figure 1 and 3);

An optical vibration sensor (OVS) positioned in proximity to the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS optically sensing vibration of the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS generating an optical vibration sensor signal based on the sensed vibration from the structure

(Column 7, line 32-50; Figure 1 and 3);

A computer coupled to receive the OVS signal determines whether a fault exists in the structure based on the OVS signal and generates a computer signal indicating whether a fault exits in the structure (Column 7, line 32-50; Figure 1 and 3).

An optical vibration sensor (OVS) positioned in proximity to the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS optically sensing vibration of the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS generating an optical vibration sensor signal based on the sensed vibration from the structure Column 7, line 32-50; Figure 1 and 3);

A computer generating a signal to indicate that a fault exists in the structure if the signal indicates a peak displacement of the vibration at a portion of the structure exceeds threshold amount data stored in the computer (Column 7, line 32-50; Figure 1 and 3);

An optical vibration sensor (OVS) positioned in proximity to the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS optically sensing vibration of the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS generating an optical vibration sensor signal based on the sensed vibration from the structure (Column 7, line 32-50; Figure 1 and 3);

An OVS signal indicating whether a fault exists in the structure;

wherein:

A computer generates a signal to indicate that a fault exists in the structure if the computer determines that the signal indicates a peak velocity of the vibration at a portion of the structure exceeds threshold data stored in the computer

(Column 7, line 32-50; Figure 1 and 3);

An optical vibration sensor (OVS) positioned in proximity to the structure

(Column 7, line 32-50; Figure 1 and 3);

An OVS sensing vibration of the structure

(Column 7, line 32-50; Figure 1 and 3);

An OVS generating a signal based on the sensed vibration from the Structure (Column 7, line 32-50; Figure 1 and 3);

A computer stores the OVS signal having vibration data for different portions of the structure and determining a fault exists in the structure by comparison of vibration data for similar structure elements if the difference between data for similar structure elements exceeds threshold data stored in the computer

(Column 7, line 32-50; Figure 1 and 3).

The OVS generates a signal in a first performance of sensing to establish baseline data including vibration data readings at spaced portions of the structure

(Column 7, line 32-50; Figure 1 and 3);

The OVS generates a signal in a second subsequent performance of sensing to generate after-acquired data including vibration data readings at spaced portions of the structure (Column 7, line 32-50; Figure 1 and 3);

The computer comparing after-acquired data with corresponding baseline data and determining a fault exists in the structure if the difference between the after-acquired and baseline data exceed threshold data stored in the computer (Column 7, line 32-50; Figure 1 and 3);

An output device coupled to the computer generates a printed document based on the computer signal (Column 9, Line 34 et seq and Column 10, Line 1-44; Figure 1 and 3);

The computer comprises a drive unit for writing fault indication data onto a computer-readable medium based on a computer signal (Column 9, Line 34 et seq and Column 10, Line 1-44; Figure 1 and 3);

An OVS controller coupled to receive a signal from the OVS generates a vibration signal indicating displacement of at least one portion of the structure (Column 9, Line 58-63; Figure 1 and 3);

An optical vibration sensor (OVS) positioned in proximity to the structure (Column 9, Line 58-63; Figure 1 and 3);

An OVS optically sensing vibration of the structure

(Column 9, Line 58-63; Figure 1 and 3);

An OVS generating an optical vibration sensor signal based on the sensed vibration from the structure (Column 9, Line 58-63; Figure 1 and 3);

A computer coupled to receive the OVS signal generates a display based on the OVS signal and is used by a user to determine whether a fault exists in the structure further comprises:

An OVS controller coupled to receive a signal from the OVS generates a signal indicating vibration velocity of at least one portion of the structure

(Column 9, Line 58-63; Figure 1 and 3);

An OVS controller coupled to the computer to supply a signal indicating vibration velocity to the computer

(Column 9, Line 58-63; Figure 1 and 3);

A computer coupled to receive the OVS signal generates a display based on the OVS signal and is used by a user to determine whether a fault exists in the structure further comprises:

An OVS controller operable to automatically focus the OVS on the Structure (Column 5, Line 26-36);

A computer coupled to receive the OVS signal generates a display based on the OVS signal and is used by a user to determine whether a fault exists in the structure further comprises:

A pan/tilt head coupled to the OVS for alignment of the OVS relative to the structure further comprising:

A position controller coupled to the pan/tilt head generating a position signal and supplying the signal to the pan/tilt head to control alignment of the OVS relative to the structure comprising further still:

A computer coupled to the position controller generates a signal and supplies signal to the position controller that generates a position signal based on the position control signal (Column 6, Line 23-29; Figure 1);

The OVS comprises an optical element coupled to the laser/sensor head further comprises:

A scan unit for scanning a laser beam generated by the laser/sensor head over different portions of the structure and receiving the scanned laser beam from the different portions of the structure (Column 8, Line 8-12);

And a vibration generator positioned proximate to the structure producing a vibration response in the structure wherein the vibration generator applies direct force to the structure (Column 1, Line 58-62).

Claim Rejections - 35 USC § 103

10 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11 Claims 12, 14, 20, 21, 44, 46, 52, 53, 86, 88 and 93 rejected under 35 U.S.C. 103(a) as being unpatentable over Webster as applied to claims 1, 32 and 64 above, and further in view of Savage (US 4,128,011)(Hereafter referred to as Savage).

Savage teaches a method comprising:

Vibrating the ground proximate to a structure (Figure 1);

Vibrating the ground with a ground vibrator (Figure1);

Direct application of force to generate a sonic wave in a structure by bumping the structure with a vehicle (Column 2, line 52-57);

Vibrating the structure by exposing the structure to wind loading (Column 2, line 52-57);

And determining the structural integrity of a basement floor (Column 9, Line 49-53).

12 Regarding claims 12, 14, 44, 46, 86 and 88, one skilled in the art would have been motivated to modify the teaching of Webster of vibrating the structure by vibrating the ground proximate to the structure as taught by Savage because the structure would have been coupled to the ground, in most cases, and vibrating the ground by a variety of conventional means such as ground vibrators, explosions and vehicle motors would have produced a vibration in the structure.

13 Regarding claims 20, 52 and 93, one skilled in the art would have been motivated to modify the teaching of Webster of vibrating the structure by direct application of force produced by bumping the structure with a vehicle as taught by Savage because the energy transmitted to the structure by a vehicle would have been greater, in most cases, than by other indirect vibration production that could have been initiated by a variety of conventional means such as ground vibrators, vehicle motors or speakers.

14 In regard to claims 21 and 53, one skilled in the art would have been motivated to modify the teaching of Webster of vibrating the structure by the teaching of Savage of vibrating the structure by exposing the structure to wind loading because wind loading would have set up sonic waves within a structure causing vibrations, well known in the art, that would have been easily measured, would have posed lower risk of physical damage to a structure and would have reduced costs by lessening the need for sound generation equipment.

15 Regarding claims 22, 23, 54 and 55, one skilled in the art would have been motivated to modify the teaching of Webster of determining whether a fault exists in a structure based on optically sensed structural vibrations by the teaching of Savage of determining structural integrity of a building because houses and buildings are conventional structures whose structural integrity would have been of interest.

16 Claims 17, 49 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster in view of Savage and further in view of Kaduchak et al. (U.S. Patent Number 6,186,004 B1)(Hereafter referred to as Kaduchak).

Kaduchak teaches sonic waves generated with a speaker (Column 1, Line 64-67 and Column 2, Line 1-10).

17 Regarding claims 17, 49 and 89, one skilled in the art would have been motivated to modify the teaching of Webster of generating sonic waves by the teaching of Kaduchak of sonic waves generated with a speaker because generating sonic waves with a speaker would have allowed greater control of frequency and intensity than most other direct contact or ground coupled vibration generation methods and would have had, in most cases, greater portability.

18 Claims 15, 47 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster in view of Savage and further in view of Littlejohn et al. (U.S. Patent Number 5,798,981)(Hereafter referred to as Littlejohn).

Littlejohn teaches vibrating the ground proximate to a structure by generating an explosion (Column 5, line 65 et seq).

19 In regard to claims 15, 47 and 90, it would have been obvious to one skilled in the art to modify the teaching of Webster of vibrating the structure by the teaching of Littlejohn of vibrating the ground proximate to the structure by generating an explosion because a ground vibration generated by an explosion would have produced an intense vibration of the structure that would have been difficult to produce by other vibration generating methods.

20 Claims 18, 50 and 91are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster in view of Savage and further in view of Becker, T J; "Picking Up Good Vibrations"; Georgia Technical Institute Research Horizons; May 2000 (Hereafter referred to as Becker).

Becker teaches vibrating the structure by generating a sonic wave using the noise generated by a helicopter (Page 1).

21 Regarding claims 18, 50 and 91, one skilled in the art would have been motivated to modify the teaching of Webster of vibrating the structure by the teaching of Becker of generating a sonic wave using the noise generated by a helicopter because a helicopter would have allowed access to and measurement of remote or difficult to reach structures, such as offshore energy production platforms, power-line structures or astronomical observatories, in a timely and cost-effective manner.

22 Claims 77-79 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster in view of Savage and further in view of Naiman J; "Laser Vibrometers Simplifying Bridge Condition Evaluation"; OE Reports; Volume 173; May 1998 (Hereafter referred to as Naiman).

Naiman teaches a tripod coupled to an OVS (Figure 3); a pan/tilt head coupled to an OVS (Figure 3); an OVS comprising a laser/sensor head (Figure 3); and a position controller coupled to the pan/tilt head generating a position signal and supplying the signal to the pan/tilt head to control alignment of the OVS relative to the structure (Figure 3).

23 Regarding claims 77-79 and 81, it would have been obvious to one skilled in the art to modify the teaching of Webster of optically sensing vibrations from a structure performed with a Doppler laser vibrometer by the teachings of Naiman of a tripod; a pan/tilt head; an OVS comprising a laser/sensor head; and a position controller coupled to the pan/tilt head because these were all commonly available elements that enhanced versatility and functionality of conventionally used vibration sensing equipment and systems.

24 Claims 82-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster in view of Savage and further in view of Polytec Product Catalog; July 1996; Pages 1-15 (Hereafter referred to as Polytec).

25 Regarding claims 82-84, it would have been obvious to modify the teaching of Webster of an optical vibration sensor by the teaching of Polytec of an optical element coupled to the laser/sensor head; an optical element coupled to the laser/sensor head is a filter; and an optical element coupled to the laser/sensor head is a lens because optical element components for a laser vibrometer laser/sensor head were conventional attachments, widely used in the art, to increase the functionality and versatility of vibration sensing equipment and systems.

Conclusion

26 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas N Washburn whose telephone number is 703 308-2854. The examiner can normally be reached on Monday through Thursday 6:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John S Hilten can be reached on 703 308-0719. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9318 for regular communications and 703 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0956.

DNW
March 12, 2002

JOHN S. HILTEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800